HISTORY OF NAVIGATION OF THE SANTA CRUZ RIVER

By Don Bufkin

INTRODUCTION

The intent of this report is to examine the history of the Santa Cruz River from its first discovery by Europeans in 1691 to the time of statehood for Arizona (February 14, 1912), a period of more than two centuries. For the great majority of that period, the Santa Cruz River Valley was thinly populated and often under the threat of Apache attack.

The specific purpose of this examination is to review primary and secondary sources in order to identify and document the physical state of the river and the various uses that have been made of the river during the period studied. This report has been prepared in conjunction with the legal analysis of the navigability status of the river circa 1912 by Mr. Hugh A. Holub, attorney at law.

Sources surveyed are as noted:

The Library and Archives of the Arizona Historical Society;
- newspaper microfilms
- ephemeral files for subjects; Santa Cruz River, Santa Cruz Valley, Tucson - Rivers, Tucson - Water, Tucson - Celebrations
- subject card catalog; Santa Cruz River, Santa Cruz Valley, sawmills, lumber, Tucson - Construction

The Library of the University of Arizona, Special Collections
- subject card catalog; Santa Cruz River, Santa Cruz Valley, Lumber/timber, Navigation

Tucson newspapers, i.e. Star and Citizen were completely reviewed for the period January 1911 through February 1912 for any descriptive references to the Santa Cruz River.

Of major assistance to this research effort was access to a manuscript currently in preparation for publication by two eminent experts on the Santa Cruz River who have previously published on this subject. [1]

Other published sources consulted are as listed in the notes at the end of this report.

DESCRIPTION

The Santa Cruz River rises in the upper San Rafael Valley where streams from the Huachuca Mountains, the Canelo Hills and the Patagonia Mountains converge to form the river. At Meigs Ranch near the base of the Canelo Hills, the elevation is 4,874 ft. After flowing south

some eight miles, the river enters Sonora, Mexico where it begins a gentle 32 mile loop eventually turning north to re-enter the United States five miles east of Nogales. At this point, the Buena-vista land grant is on the U.S. side and the site of the old mission of Baconancos is on the west bank on the Mexican side. The elevation at the border is approximately 3,800 ft. The river then continues northwesterly for 14 miles to Calabasas or present day Rio Rico where it is joined by Sonoita Creek. At Calabasas, the elevation of the river is 3,430 ft.

It then proceeds northerly past Tumacacori to Tubac for 13 miles. At Tubac the elevation is just under 3,200 ft. and the river is 67 miles from its source in the San Rafael Valley. From Tubac the river runs north for 13 miles to Canoa. It was between Tubac and Canoa that most pre-1890 accounts indicated that the surface flow went under-ground under normal conditions. Twenty-three miles north of Canoa the river passed San Xavier del Bac where the elevation is 2,600 ft. Another 8 miles north through the Tucson Basin, the river passes Sentinel Peak (or "A" Mountain) near the site of the Presidio of San Agustin del Tucson. Here the river turns northwesterly again for 21 miles to the Marana area where the elevation is 2,000 ft. From Marana, near the north end of the Tucson Mountains, the river follows a consistent northwesterly direction to its confluence with the Gila River. The river channel is poorly defined in this stretch and very seldom carries any surface flow even in flood periods. This last portion of the Santa Cruz River was known to early travelers over the Gila or Southern Overland Trail as the "Ninety Mile Desert". The Santa Cruz joins the Gila River 222 channel miles from its origin in the San Rafael Valley. At its union with the Gila, the elevation has dropped to just below 1,000 ft. in elevation.

The best post-19th century description of the Santa Cruz River is provided by Geodfry Sykes, of the Carnegie Desert Laboratory, in a monograph published in 1939. [2] In that publication, he notes that desert drainageways are of three sorts: (1) through flowing rivers; (2) intermittent streams; and, (3) dry creeks or arroyos. He notes that the Santa Cruz River of Arizona belongs to the second of these classifications - i.e. "intermittent streams which take rise in desert mountains (and) flow into the desert but not out of it, and are larger (in flow) at their upper ends than in their lower reaches." Sykes, in this published source, also notes that the Santa Cruz watershed comprises 7,000 square miles in the U.S. and 450 square miles in Sonora, Mexico. He further notes that "channel flow is so infrequent and irregular and surface exposures of water, were such occurs, are ephemeral .... Floods of sufficient magnitude and duration to extend for the entire length of the system are very infrequent and perhaps not oftener than once in ten to twenty years does flood water originating in the upper valleys succeed in reaching the Gila."

Sykes provides a table of post statehood flow of the Santa Cruz River at the Tucson gaging station. The table reports flow in terms of acre-feet per month for the years 1915 through 1935. The average annual flow in this period was 16,361 acre-feet. It is interesting to note that almost 80% of the total river discharge in this period was recorded in the three months of July, August and September.

HISTORICAL SYNOPSIS

The gradually expanding northwestern frontier of New Spain (Mexico) extended into the Santa Cruz River Valley when Father Kino established missions at Santa Maria (Suamca), San Lazaro, and Bacoancos in 1689. These mission sites were on the Santa Cruz River on its southerly loop through what is today Sonora, Mexico. In 1691, missions were established at Guevavi and Tumacacori and finally at San Xavier in 1692. Presidios (fortified military garrisons) were established at Tubac in 1752, Tucson in 1775/76 and at Santa Cruz in 1787. In 1774 and 1775/76 to 1781 and again in 1823, attempts were made to open and secure an overland route from the Pimeria Alta to Alta California. These attempts did not result in a permanent line of supply and communication with California so that the settlements along the Santa Cruz River remained isolated and exposed outposts of New Spain. Historian Herbert E. Bolton characterized these outposts as "the Rim of Christendom".

Mexico won independence from Spain in 1821, but that did not result in significant change for the Santa Cruz River Valley. If anything, there was a depopulation of the valley at the end of the Mexican period. The Mission San Xavier del Bac was secularized in 1841 and left largely unattended for more than the next two decades. Dramatic changes in the Santa Cruz Valley did occur between 1846 and 1854.

The War between the United States and Mexico erupted in the late spring of 1846. Later in that year, Stephen Watts Kearny, commanding an American force, marched from Fort Leavenworth, Kansas to the Pacific, passing through Arizona along the Gila River. Kearny had detached a portion of his command with the charge to mark and improve a feasible wagon road from the Rio Grande to the Pacific. The "Mormon Battalion", in the course of marking out the wagon road, came to the Santa Cruz River at Tucson in December of 1846 where they had raised the first American flag over the "Old Pueblo of Tucson".

The Mexican War ended in February of 1848 with the signing of the Treaty of Guadalupe Hidalgo. All of present day Arizona north of the Gila River became part of the United States as a result of that Treaty. Almost in the very shadow of that Treaty, the discovery of gold in California would bring hordes of would-be gold seekers west from the eastern states. Many of the 49er's followed a portion of the "Gila Trail" along the Santa Cruz River through what was still Mexican territory in 1849 & 1850.

The Santa Cruz River Valley was also part of a region that was receiving considerable attention from the Boundary Survey parties. These groups, attempting to carry out the provisions of the Treaty of Guadalupe Hildago, were surveying the proscribed new boundary between the U.S. and Mexico. Complications from map inaccuracies, as well as other variable interpretations of the Treaty document and the critical cash needs of Santa Ana's government of Mexico, led to the Gadsden Purchase (also known as the Treaty of Mesilla) signed in December of 1853 and ratified by both nations by June of 1854. All of present day Southern Arizona lying south of the Gila River was thus added to the United States. Included within the area purchased from Mexico was almost all of the Santa Cruz River Valley and the sites of the former Presidios

of Tucson and Tubac.

American forces did not formally occupy this area until 1856, when a small American force established Camp Moore at Calabasas where the Santa Cruz and Sonoita Creeks converged. At the time of the Gadsden Purchase, Anglos had began to locate at Tucson for the business opportunities that they perceived to exist there. Additionally in the period following the Gadsden Purchase, Americans began to claim and exploit the mining potential of this new American territory. Concerns about a separate Territorial Status for Arizona (i.e. separate from New Mexico Territory) surfaced. Just as the Santa Cruz River Valley was an isolated portion of the Spanish and Mexican frontier, the region became a part of the remote and isolated frontier of the American southwest.

The Civil War proved to be a temporary setback for the southwest; but during that conflict, Arizona did gain the status of a new Territory. Before and after the Civil War, the growing population in the Santa Cruz Valley brought new uses for the limited waters of the Santa Cruz River. While the clearly dominant historical use of the river, by man, has always been the diversion of surface flow (and sub-surface flow) for purposes of irrigation of the arable flood plain of the Santa Cruz River, new uses were introduced during this period. These were more extensive flour milling as well as ore reduction both for the milling processes and the smelting.

By the time that the railroad (S.P.R.R.) had arrived at Tucson in March of 1880, building from the west to the east, other new uses of the river were in the process of developing. Selective damming of the river had created small lakes in the Tucson Basin. At Silver Lake and near Sentinel Peak at Warner's pond or Lake both recreational as well as commercial uses of a controlled river reached the ultimate in the appropriation of the river's immediate surface flow capabilities.

The period of the late 1880's and early 1890's saw traumatic changes for the Santa Cruz River Valley. Head cutting for irrigation purposes and a series of floods which damaged and/or washed out the dams on the river began a prolonged cycle of severe erosion resulting in the present deeply cut channel of the river, not characteristic of the river in former historical times.

As population increased, and as did the demands for water for both agricultural and domestic uses, the river could no longer supply such needs. Beginning in 1891 and continuing to and past the time of statehood for Arizona, pump-well technology developed. This aspect of "mining Arizona's underground waters" became the principal means of meeting the new and growing demands upon the need for water in the Tucson Basin. The result of these methods began a series of annual "overdrafts upon the groundwater supply"--meaning the amount of water withdrawn exceeded replenishment from natural recharge--which continue to the present.

The specific history of European contact and settlement in the Santa Cruz River Valley is reviewed in the narrative that follows:

Father Eusebio Francisco Kino, the intrepid Jesuit priest, was most probably the first European to view the Santa Cruz River as it existed in the area we now know as Southern Arizona. He had selected the site of the missions on the southerly loop of that river just two years previously. In January of 1691, he set out to the north from the village of Tucubavia on the Rio Altar, in company with Father Visitor Juan Maria Salvatierra. [3] The missionaries had been met at Tucubavia by messengers from the Sobaipuri Indians living in a major river valley well to the north. They were both firm in the belief that they must respond to this most earnest expression of desire on the part of these Indians for the contact and services of the missionaries.

Traveling northeasterly and crossing the rugged mountains just north of the present international boundary, they came to what Kino called the Guevavi Valley (part of the Santa Cruz Valley). They continued north to the village of Tumacacori before returning south. But here they met representatives of Sobaipuri Indians who were living at Bac some 40 miles further to the north and downstream from Tumacacori. They would respond to these earnest invitations in the following year.

Some might contend that Fray Marcos de Niza came upon the headwaters of the Santa Cruz as early as 1539 as he attempted to pursue the legend of the Seven Cities of Cibola following the reports of Cabeza de Vaca. At the tiny present day community of Lochiel, on the border with Mexico, visitors may come upon a rather neglected monument erected in 1939 commemorating de Niza's trek to the unknown country beyond the northern frontier of New Spain. As to exactly where Marcos de Niza may have entered present day Arizona, if in fact he did so, is still a matter debated by historians. It is Father Kino and those who came after him who have given us a descriptive view of the Santa Cruz River and its conditions during the early Spanish period.

In writing about his 1691 trip of exploration, Kino described "how these lands and valleys of the (Pimeria Alta) could be the remedy for the scanty and more sterile lands of California (Baja California)..." [4] Kino would make six more trips through the Santa Cruz River Valley before 1700 when the foundations for the first permanent church at San Xavier del Bac were laid.

It should be noted that the Piman name "Bac" was applied to the site of the Indian village first visited by Kino in 1692. This was a site inhabited by 800 Sobaipuri Indians at that time. [5] The Piman word Bac is translated as meaning "a place in the stream bed where water re-emerges from its underground flow (for a short distance it flowed on the surface before again sinking into the sands)". This brief surface flow was abetted by several natural springs in the vicinity of Bac. These springs were the Punta de Agua about a mile and one half south of the mission and Agua de la Mision about a mile south on what has been referred to as the Spring Branch of the Santa Cruz River. This occurrence of water in the otherwise desolate desert enabled the large Indian population to live on this site adjacent to the river at the time of the first contact by Europeans.

In Kino's day, the Santa Cruz River was located in the north-eastern portion of the region known as the Pimeria Alta (land of the Upper Pimas). It had an Indian population estimated at 30,000. [6] The Pimeria Alta region covered present day Southern Arizona and Northern Sonora. Kino had named and recorded this river on his maps as the Rio de Santa Maria. It was also known in Spanish times as Rio Santa Maria del Pilar, Rio Santa Maria de Suamca and in some instances, the name for the river was localized such as the reference to the Rio de Tubac by Lt. Joseph de Urrutia.

The historian Bernard L. Fontana, writing in the fall 1971 Smoke Signal, attempted to clarify and document the various names applied to the Santa Cruz River in the historic period. Ironically he notes the recent local use of the name Rio Rico--the rich river--a river of many names, as history coming full cycle. [7] This is in regard to a modern real estate development on the very site of Col. Sykes earlier Calabasas promotion which will be discussed subsequently.

It is of interest to further note that Kino named the Gila River as Rio de los Apostoles (the river of the Apostles). [8] It was his intent to name the major tributaries to the Rio de los Apostoles after the apostles: [9]

Rio Salado (Salt River) - Matthew
Verde River - Mark
Santa Cruz River - Luke
San Pedro River - John

The name Rio de Santa Cruz came into general use after 1787. [10] In that year the military presidio that had been at Las Nutrias on the headwaters of the San Pedro River was moved to a new site on the southerly loop of the River that Kino had named Rio de Santa Maria. The Presidio, which had "migrated" along various sites on the San Pedro River from 1742 to 1787, was finally located near the headwaters of Kino's Rio Santa Maria. The presidio which had been known as the Presidio of Santa Cruz de Terrenate finally brought the name Santa Cruz (Holy Cross) to the River Valley that Kino had so enthusiastically described almost a century before.

Recorded observations of the Santa Cruz River during the Spanish period are numerous. A few selections are noted as follows:

Captain Juan Mateo Manje, a Spanish Officer who accompanied Father Kino on nine major trips of discovery into the Pimeria Alta between 1694 and 1701, kept a diary which included descriptions of the Santa Cruz River as noted in these selections--

--"November 23, 1697: after mass, traveling nine leagues south [about 23 miles] down river which submerges some distance, coming out again to join the Gila River to the west and near the last settlement we came from, we came to the settlement of Valle de Correa [note; Valle de Correa was near present day Cortaro or about at the Point of the Mountain] where the Indians obtain their drinking water from a well made by hand in the bed of the river".

In the same diary entry, Manje notes that "we came to the settlement of San Agustin de Oiaur....here the river runs a full flow of water though the horses forded it without difficulty." [note; San Agustin de Oiaur was a Pima Village about a mile and one half north of modern downtown Tucson on the east bank of the Santa Cruz River.][11]

The historian Herbert Eugene Bolton notes that from the accounts of the Spanish officer Captain Cristobal Bernal who noted that on that same trip in 1697 the following-- "Traveling on the 23rd [Nov. 1697] nine leagues up the dry river bed, they halted at a village of a hundred persons in Valle de Correa [near Cortaro], another landmark...Crops here were dependent on seasonal rainfall, and the natives drank from a deep well dug in the sand [of the dry river bed]."

Bernal further notes in this accounts that "Here at San Agustin the river was running with some volume and the stretch from here to Bac [San Xavier] was the most populous and most fertile spot in the whole Valley." [12]

Manje, in his diary accounts, further notes that on November 26, 1697 "after having heard mass and saying goodbye to the Indians, we continued south over plains passing along the river bed which submerges here. We arrived at nightfall at San Cayetano del Tumagacori [Tumacacori]." [13]

It is very clear from numerous Spanish accounts that Kino's Rio de Santa Maria which became the Rio Santa Cruz after 1787, was in fact a desert stream which flowed as a perennial stream only from its headwaters south to a point between Tubac and Canoa before it went underground to surface briefly near the Sobaipuri Indian village at Bac (San Xavier) and again near the place that Kino, Manje and Bernal referred to as San Agustin del Oiaur (Tucson).

In support of the above historical interpretation it is useful to cite a few additional sources from the period of Spanish sovereignty on the Santa Cruz River.

From the report of Manuel de Leon, second ensign of the Tubac Presidio, and dated August 1, 1804 -- "Our river is the Santa Cruz, which takes its name from the Santa Cruz Presidio at its headwaters, forty miles to the southeast of us [at Tubac]. Only in the rainy seasons does it enjoy a steady flow. During the rest of the year it sinks into the sand in many places". [14]

From the report of Jose de Zuniga, Captain at the Tucson Presidio, and dated August 4, 1804 he notes the following-- "The rivers of the region include the Santa Catalina [Rillito] five miles from the presidio, which arises from a hot spring [most likely the Agua Caliente hot spring in the vicinity of present day Redington Pass] and enjoys a steady flow for ten miles in a northwesterly direction but only in the rainy seasons.... Our major river is the Santa Maria Suamca [Santa Cruz River], which arises ninety five miles to the southeast from a spring near the presidio of Santa Cruz. From its origin, it flows past the Santa Cruz presidio....as well as the abandoned missions of Guevavi and Calabasas, the Pima mission at Tumacacori and the Tubac presidio. When rainfall is only average or below, it flows above

ground to a point some five miles north of Tubac and goes underground all the way to San Xavier del Bac. Only during years of exceptionally heavy rainfall does it water the flat land between Tubac and San Xavier". [15]

In 1821 Ignacio Elias Gonzales reported upon the region between Tucson and Tubac "an area that contains a wide plain, through the middle of which runs the river of this military post [Tubac], although without water, because of its many sandy places which interrupt its flow at a distance of a half a league from the post...." [16]

It is very clear from the numerous Spanish and Mexican accounts of the status of the Santa Cruz River that in historic times (from the 1690's to about 1890) that the Santa Cruz River flowed as a shallow but perennial stream from its headwaters in the southwestern slopes of the Huachuca Mountains and the San Rafael Valley southerly into Mexico, and then again northerly back into the United States where it sank into the sands of its bed somewhat north of the old presidio of Tubac. It would re-surface for short stretches at the village of Bac about nine miles south of present downtown Tucson and again at the base of Sentinel Peak ("A" Mountain) just to the immediate southwest of present day downtown Tucson.

The discovery of gold in the foothills of California's Sierra Nevada Mountains early in 1848 as well as the end of the War with Mexico, had a considerable impact on the settlement of the Santa Cruz Valley. When official word of the dramatic gold discovery reached the eastern states, it touched off an overland rush to the site of the gold fields.

Tens of thousands of California argonauts (see Sonnichsen, Tucson, page 34) came west over the "Gila Trail" or the southern overland route. Many followed the Santa Cruz River from near its origin almost to its junction with the Gila River, passing through Tucson en route. A number of journals were kept by the gold seekers and these provide descriptions of the river and valley in 1849-50. Most of these accounts refer to the picturesque valley with the verdant vegetation along the banks of the small stream. This was in sharp contrast with the more harsh country just traversed. This description was applicable to the upper reaches of the Santa Cruz River Valley and downstream at least to the vicinity of Tubac and Canoa.

They also commented upon the abandoned settlements and church structures (Tumacacori and San Xavier) as well as the poor state of the few inhabited towns encountered. Many of the journals took particular note of the Santa Cruz River's condition, given the critical importance of water to the overland travelers. Examples are as follows:

In May of 1849, John E. Durivage, a member of a large party from New Orleans, observed that they camped eight miles north of Tumacacori just above the point where the river disappeared into the sand. [17]

In July of 1849, Benjamin Butler Harris, traveling with a party of Texans, recorded "We dropped next morning to Tucson, camping half a mile beyond in the river bottom, which had water in holes only." Harris, after leaving Tucson, wrote "Hence to the Gila River was a desert

plain without water." [18]

An early and most valuable descriptive account of the river by an American was that of Lt. Cave Johnson Couts. Lt. Couts was with a U.S. Army column bound for California out of Mexico and under the command of Maj. Lawrence P. Graham in 1848. His journal entry for Oct. 20, 1848 reads "Left Santa Cruz yesterday morning, marched 10 miles down the river by the same name, and which we follow to Tuisson [Tucson]. It is a beautiful little stream, passing through a large growth of cottonwood, from which extends a small but magnificent valley." He mentions that there were two (flour) mills in the village of Santa Cruz. In another entry, he records "The river, or, more properly, branch or creek disappears in its sandy bottom a little below Ft. Tubac, and probably does not rise again." However, after arriving at Tucson he writes "About here is where the branch disappears into the sandy desert which we have passed since leaving. The bed of it can be traced but little farther." [19]

Between 1850 and 1855, boundary survey parties visited the Santa Cruz Valley and described the river much in the same was as the 49ers had. The published reports of John Russell Bartlett and William H. Emory provide descriptions and illustrations of the river valley.

During Tucson's first 74 years, while it was a military presido, its population was usually between 300 and 400 persons. After the end of the War with Mexico, Tucson began to grow because of its importance as a major point on the southern overland route to California. American businessmen began to locate in Tucson shortly after the Gadsden Purchase was ratified. The new residents saw new and important uses for the river.

William M. Rowlett and his brother Alfred began construction of an earthen dam on the Santa Cruz River downstream of a spring-fed cienega near Sentinel Peak ("A" Mountain). The brothers also built Tucson's first water powered flour mill in 1857/58. [20] Sam Hughes, who arrived in Tucson in March of 1858, recalled that the winter of 1858/59 was colder than usual and some 13 inches of snow fell in Tucson. His recollections printed in the Arizona Mining Index for February 27, 1886, included the observation that the waters of the Santa Cruz were so deep that a flatboat could be navigated probably clear to the Gila River at Maricopa and that the Rillito River was a mile wide.

In 1860 William S. Grant bought Rowlett's flour mill which was located on the west bank of the Santa Cruz River south of the present day Silverlake Road -29th Street). The dam and the lake were included in the purchase. Grant improved both the dam and the flour mill in order to meet his contractual obligations to supply military posts in the southwestern region. Grant also built a second and larger mill on the river and machinery was purchased and shipped from California. The outbreak of the Civil War and the subsequent withdrawal of federal troops from Arizona would lead to the loss of Grant's business and facilities in Tucson. Grant's flour mill was burned on July 15, 1861 in order that it not be used by Tucson's Southern sympathizers or Confederate troops. [21]

The California Column, a Union force raised in that state, arrived in Tucson in March of 1862 and attempted to repair the burned out mill ruin. The mill was restored to operation in 1864 by James Lee and it was successfully operated by Lee and his partner William F. Scott as the Pioneer Mill for a

number of years.

In 1884 Lee sold the mill, dam and lake to Frederick Maish and Thomas Driscoll who developed the Silver Lake Resort. [22] The dam was improved again using some masonry construction. A hotel, bath house, pavilion and a race track were features of the improved recreational facilities.

The Arizona Citizen for August 22, 1874 reported that Solomon Warner returned to Tucson with the intent of competing with the Silver Lake milling operation. He completed construction of a new mill at the base of Sentinel Peak in October, 1875. Warner's system included a millrace that began near Silver Lake and ran just short of a mile north to his mill location. The tailrace took the waste water east to the acequia madre near the ruins of the old mission (convento). In 1883, Warner purchased land along the West Branch of the Santa Cruz River and began construction of a large earthen dam to impound the West Branch cienega at the south base of Sentinel Peak. [23]

A rather unique news story appeared in the Arizona Star for November 10, 1881 under the heading "He Tried It and Was Left". The story went on to report, "A would be suicide abused the lonely Santa Cruz by tying a rope with a rock attached to his neck. Water was too shallow and mud [was] up to his waist. He had to be hauled out by a Mexican."

The Arizona Citizen for November 18, 1883 provides a description of Warner's Lake. "It now covers 20 acres. A flat bottomed boat sails over its surface." Warner had intended to construct a resort at his lake to compete with Silver Lake, but he encountered a major financial setback. In May of 1886 Warner sold all of his 315 acres, including the mill and the lake, to Mrs. T.L. Shultz. [24]

Severe flooding on the Santa Cruz River was reported in August of 1886. Floods in 1886 as well as in 1887 breached the dams at Silver Lake and at Warner's Lake. These traumas were followed by the great earthquake centered near Bavispe, Sonora in May of 1887 which was clearly felt throughout Southern Arizona. The Arizona Star for July 13, 1887 reported that the Santa Cruz River is more than a mile wide and deep enough to float a mammoth steamboat. Again on August 20, 1887, the Star noted that the present time is the most liberal rainy season Arizona has experienced for twenty years. The 1887 floods washed out the newly built dam along the Spring Branch of the Santa Cruz River and scoured a channel immediately downstream. [25]

In 1888, Frank and Warren Allison had purchased the former Warner properties and rebuilt the lake, stocking it with carp. In early summer they were selling up to 500 pounds of fresh fish a day. [26] Also in 1888, Sam Hughes excavated a diversion ditch that intercepted the underflow of the river near the present day alignment of St. Mary's Road. [27] This ditch opening would initiate accelerated channel erosion during the summer rains of that year. The Arizona Citizen for August 1, 1890, in reporting on the flooding Santa Cruz noted in a humorous vein, "steamers will leave Levin's Landing daily at 2 PM for Yuma." Levin's Gardens or Park was a popular recreation spot just west of Main Avenue. The Arizona Star for August 13, 1890 quoted George Roskruge to the effect that the new channel [cutting of the Santa Cruz] was the Sam Hughes ditch taking a walk upstream to Maish's Silver Lake. Finally the Star reported that Silver Lake dam washed away for about 40 feet during the floods of August, 1890. [28]

The year 1890 appears to be a point of significant change for the state of the Santa Cruz River. The dams in the Tucson area were again (and this time finally) washed out and severe channel cutting took place. After 1890, surface flow in the river in the Tucson Basin ceased. Following 1890 the period of dependence on pump-well technology was ushered in. In 1891, W.A. Hartt developed one of the first farms depending entirely upon water pumped from underground to the surface for irrigation purposes. [29] Hartt's farms were at present day Sahuarita on the Santa Cruz River. In 1910 the Tucson Farms Company was formed. It would become the Flowing Wells Irrigation District in 1912/13. [30]

Ironically, after the floods from 1886 to 1890, Tucson's most severe drought occurred from 1899 to 1904. But, in 1905 Tucson received a total of 24 inches of rainfall. More than half of this rainfall came in the months of January to April. [31] A most fascinating incident in the history of the Santa Cruz River and one that may have done much to project the image of a generously flowing river complete with steamboat commerce, was the promotion of the Calabasas townsite.

Col. Charles P. Sykes, of San Francisco, bought the ranch holdings of Manuel Maria Gandara for $12,000 in 1878. [32] Gandara, a former Governor of Sonora, acquired the Tumacacori, Calabasas and Guevavi land grants in 1844. [33] The grant claims covered over 80,000 acres of Santa Cruz River bottom lands in the area where Sonoita Creek enters the Santa Cruz.

Col. Sykes platted a generous townsite and began to actively promote the area with the expectation of particular benefit from the completion of the New Mexico & Arizona R.R. The NM&A. RR, completed in 1882, connected the S.P.R.R. mainline at Benson with the Sonora Railway at the border south of Calabasas. Sykes placed a large advertisement in the New York Daily Graphic for October 1, 1878 showing views of the Santa Cruz River Valley and including an illustration of his projected two-story hotel in the center of the townsite. Purportedly, he also published a promotional brochure which carried illustrations of a large and prosperous community of Calabasas complete with steamboats docked at the busy river waterfront.

His aggressive and often creative promotions, including implied endorsements from prominent Tucsonans, resulted in the filing of a libel suit by Pinckney R. Tully (Arizona Star Oct. 6, 1881). Another newspaper story at the time, reported on a lavish sightseeing trip by a large party of Tucson residents to Calabasas. The tour was led by Col. Sykes as managing director of the Calabasas Land & Mining Co. (Arizona Star Oct.10, 1881).

In defense of the implication of fraud in his promotions, Sykes publicly offered a $5,000 reward to anyone who could produce a copy of the printed copy of the prospectus showing steamboats on the Santa Cruz River (Arizona Star Oct. 13, 1881). Ten months later, the editor of the Weekly Tombstone Epitaph gives some credence to the existence of such a brochure in a column under the lead line "Calabasas Classics". The piece ran in the August 12, 1882 edition and in the colorful journalistic style of the time, the editor comes down hard on the promotion without ever mentioning Sykes by name. A portion of that article is quoted below:

WEEKLY (TOMBSTONE) EPITAPH - AUGUST 12, 1882

"CALABASAS CLASSICS; Thieves steal from each other and what occurred thereby $1,000 haul, a deputy sheriff being the victim" Perhaps there is no spot in the United States where the spirit of deviltry and pure cussedness have so much play as in the extreme southern wing of Pima County, hugging the state of Sonora. Ever since the building of the Arizona & New Mexico Railroad began, a wild, worthless pack of outlaws from every quarter of the globe have been gathering along its line. The Sonoita valley made beautiful by nature has been irrigated with blood from end to end. Men who were as ready to be killed as they were to kill, and women whose faces were not shrouded with a blush for years made Tar Flat, Crittenden and adjoining camps their headquarters. Riot, robbery and bloodshed was the order of the days, murder an amusement, and deviltry that would puzzle hell to reproduce or omnipotence to duplicate a mere pastime.

Within a few miles from the line of the railroad a few speculators had laid out a town on the banks of the "raging Santa Cruz River". The town site is owned by a company, and prospectuses glittering with generalities and radiant with metaphor were stricken off. There were three articles of this kind: One for circulation in Arizona, another for distributing in the eastern states, while the third was to enlighten the European mind on the grandeur of the enterprise. The European prospectus was a grand affair. It was filled with magnificent drawings representing the raging Santa Cruz at high tide with steamboats and heavy vessels at the docks unloading, while yonder in the distance could be seen the smoke of a dozen furnaces, with lively locomotives hauling ore to the numerous mills. A little further south was the grand promenade, bounded on one side by stately mansions and on the other by the placid waters of the Santa Cruz, with the tide rolling and ebbing along. The spires of a dozen churches and public buildings, the campus grounds of colleges and school houses, with troops of merry children gamboling on the green sward added further enchantment to the view. This paradise was called Calabasas. Calabasas in Mexican-Spanish means pumpkins so in clear English the town should be called Pumpkinville. It was indeed a heavenly place if extreme quietness and tranquility could make it so, before the railroad struck its environs. As it is between leaden pills and malaria, it requires an everlasting boom to keep the population from falling off....."

Col. Sykes did actually build his two-story brick hotel that he named the Santa Rita and the railroad did arrive at the Calabasas townsite, but Sykes eventually lost his land claim when the Court of Private Land Claims found the 1844 land sale to be invalid. [34]

The Sykes heirs left the property in 1915 and his magnificent hotel, reduced to the status of a hay barn, burned in 1927. [35] Calabasas became just another forgotten ghost town, but fixed in the memory of many was the image of a time in the past when steamboats plied the waters of the Santa Cruz River.

[Note: The Calabasas area is now known as Rio Rico, which experienced another round of questionable land promotional activity in the 1960's.]

As has been noted, most historical references to boating on the Santa Cruz River have had a frivolous or humorous overtone and almost always have been associated with high water flood periods. One such example of a very real attempt was reported in the Arizona Daily Star in December of 1914, apparently in the spirit of friendly rivalry between Nogales and Tucson. That particular December the Santa Cruz was in flood and the opportunity to navigate the swollen river presented itself. Under a December 27, 1914 headline the Star reported:

"Boat From Nogales Is Coming Up The Santa Cruz"

The good boat "Nogales" is scheduled to arrive at the foot of Congress Street this afternoon at 2 o'clock according to telegrams received by Mayor I. E. Huffman and the Star yesterday from Mayor Mix and the Nogales Chamber of Commerce.

According to the telegrams the "Nogales" has passed Calabasas safely and expected to remain in the harbor of Tubac last evening, arriving at Tucson by the Santa Cruz in the afternoon.

In case the boat makes the trip it will be the first craft to safely make the journey there will doubtless be a big crowd to see it arrive. Of course there are some skeptical ones who doubt the ability of the crew of the boat to make the trip, and they will have to be shown, but in case they do get through it is believed that the Old Pueblo will simply be theirs for the evening.

The telegrams received telling of the departure of the boat were as follows; I. E. Huffman, Mayor of Tucson: The good boat Nogales passed at Calabasas at twelve today for Tucson, this being the first boat making the trip. I recommend the mariners to your good offices. - L. W. Mix, Mayor of Nogales

In another telegram to the Star :

> "The boat Nogales passed Calabasas at 12:15 today, manned by Thos. Frazier, John Jund and R. C. Gray bound for Tucson to carry New Years greeting to Tucson from Mayor L. W. Mix and the Nogales Chamber of Commerce. We expect to spend the night near Tubac and arrive in Tucson at the foot of Congress Street about two o'clock Sunday afternoon.

A follow-up story in the Star for December 28, 1914 reported as follows:

> "Good ship Nogales, now long overdue, manned by worthy crew of three, now sails the Santa Cruz raging main. Nothing was heard last evening from the good ship "Nogales" which was scheduled to arrive from Nogales yesterday afternoon at the foot of Congress Street. It is believed that the crew stopped for the night at some hospitable port not venturing to proceed further in the dark. The boat was manned by three sailors, Thomas Frazier, John Jund and R. C. Gray, and as they are experienced mariners it is not believed that anything serious has happened to them.
>
> When the boat failed to arrive last evening, the doubters began to get busy and claim that there was no such boat on the river, and that the story was of the same general type as the yarns about Santa Claus dropping in around Christmas time with reindeer and sleigh. Today will probably tell the story whether the boat sailors can get through or not. In case they do arrive they will receive a warm welcome.

A final story on this episode appeared in the Star for December 30, 1914 under the colorful headline "Tis A Sad Tale, My Hearties; What Befell The Bounding Brig Nogales":

> An explanation of just why the good boat "Nogales" did not arrive in the city [Tucson] by way of the Santa Cruz River is contained in a telegram sent to Mayor Huffman by Mayor Mix, executive of the City of Nogales. The telegram is as follows: Doctor Huffman, Mayor of Tucson, Arizona. The boat Nogales ran into the branches of a fallen tree and is now moored this side of Tubac and will proceed at the next high water. Signed L. W. Mix, Mayor of the town of Nogales.

The news story continues with the following comment:

> The recent "high water" was the first of sufficient volume to float such a boat since 28 years ago. Weather records show, and if this has any relation to the law of averages, Captain L. W. Mix, skipper of the "Nogales" and his jolly crew will arrive at the foot of Congress Street in 1942....

As a postscript to this story, Judy England from a pioneer ranching family of Tumacacori, Arizona advised this researcher, that the stranded boat hulk of the "Nogales" was dragged out of the river bed and saw service as a watering trough for cattle for many years after this notable episode. [36] There is no record of the good boat "Nogales" ever having arrived in Tucson as of 1987, seventy-three years after its departure from Nogales.

CONCLUSIONS

Historically the Santa Cruz River has served as a travel corridor from the earliest Spanish times through the Anglo period of the 19th century. Descriptions of the river are amazingly consistent from the first observations by the Spanish in the 1690's to the time of significant change in 1890. In that period of two centuries the river was a shallow but flowing stream from its headwaters to about Tubac, a distance of some 60 miles or about 27% of its entire length. It was briefly diverted to the surface of its bed near Mission San Xavier del Bac and again at Tucson in the vicinity of Sentinel Peak ("A" Mountain). These brief surface flows were greatly important in regard to Kino's selection of Bac as the site of a major mission in 1692 as well as the order to move the military presidio of Tubac to Tucson in 1775.

Before 1890, the river was used primarily for the diversion of its surface flow for agricultural purposes. Other uses during this period included flour milling, ore reduction (i.e. both ore milling and ore smelting). Damming of the river in the Tucson Basin in the late 1850's enabled milling operations as well as recreational uses and commercial fish production. In more recent times the bed of the river has been used for sand and gravel extraction which continues to the present time.

There is no historical evidence that the Santa Cruz River was ever successfully used for commercial transportation purposes. Under normal conditions the river's pre-1890 flow was too shallow, or for most of its course, non-existent to permit this kind of use. Under flood conditions, navigation of the river was extremely dangerous. Most references to boating on the Santa Cruz River are intended to be lightly humorous (see examples previously quoted) and are associated with the unusual flood conditions. There were a very few instances, prior to 1890, in which the navigability of the Santa Cruz River was suggested--and only then in association with controversial land promotional schemes or as hyperbole for describing the magnitude of flooding (see also preceding references).

Today the Tucson Basin has over 600,000 residents which sharply contrasts with the 13,193 residents of a Tucson in 1910 on the eve of statehood for Arizona. More than half of the present population in Tucson have not lived here for at least a decade; but yet there is a persistent belief by many present day Tucsonans that the Santa Cruz River was a generously flowing stream through

Tucson until well after the turn of the twentieth century. The historical record does not sustain this rather romantic, but essentially folklore, belief.

FOOTNOTES

Note: The newspapers Citizen and Star have been published under varying names since their original establishment, the Arizona Citizen (1870) now the Tucson Citizen, and the Arizona Star (1877) now the Arizona Daily Star.

[1] Unpublished manuscript by Julio L. Betancourt and Raymond M. Turner.

[2] Geodfry Sykes, "Rio Santa Cruz of Arizona: A Paradigm Desert Stream-way," Geological Publishing Company Bulletin, Des Moines, 1939.

[3] Herbert Eugene Bolton, Rim of Christendom, Russell & Russell, New York, 1960, pp.264.

[4] Fay Jackson Smith, John L. Kessell, and Francise J. Fox, S.J. Father Kino in Arizona, Arizona Historical Foundation, Phoenix, 1966, pp 59.

[5] Herbert Eugene Bolton, Kino's Historical Memoir of Pimeria Alta, University of California Press, Berkeley, 1948, pp.122.

[6] Carl Sauer, Aboriginal Population of Northwestern Mexico; and Bolton, Rim..., pp.122.

[7] Bernard L. Fontana, "Calabazas of the Rio Rico", Smoke Signal, (Tucson Westerners) No. 24, Fall, 1971. pp.66.

[8] Bolton, Rim...pp.419-422.

[9] Ibid, pp.422.

[10] Fontana, op cit, pp.66.

[11] Harry J. Karns, Luz de Tierra Incognita, Arizona Silhouettes, Tucson, 1954, pp.92.

[12] Bolton, Rim...pp.376.

[13] Karns, op cit, pp.93-94.

[14] Kieran McCarty, Desert Documentary: The Spanish Years 1767-1821, Arizona Historical Society, Tucson, 1976, pp.84.

[15] Ibid., pp.86-87.

[16] Richard R. Willey, "La Canoa: A Spanish Land Grant Lost and Found", Smoke Signal, (Tucson Westerners) No. 38, Fall, 1979 pp.154.

[17] John E. Durviage, "Letters and Journals of John E. Durviage", Ralph P. Bieber, editor, Southern Trails to California in 1849, Arthur H. Clark, Glendale, 1937.

[18] Benjamin Butler Harris, The Gila Trail: The Texas Argonauts and the California Gold Rush, edited by Richard H. Dillon, University of Oklahoma Press, Norman, 1960, pp.79.

[19] Cave Johnson Couts, Hepah, California: The Journal of Cave Johnson Couts, edited by Henry F. Dobyns, Arizona Pioneer Historical Society, Tucson, 1961, pp. 55-63.

[20] Bernice Cosulich, Tucson, pp.272.

[21] Gilbert J. Pederson, "A Yankee in Arizona: The Misfortunes of William S. Grant 1860-1861", The Journal of Arizona History, Vol. 16, No. 2. Summer 1975, pp.127-136.

[22] Pederson, op cit., pp.141.

[23] Arizona Citizen, October 30, 1875.

[24] Betancourt & Turner, op cit. See also the papers of Solomon Warner in the Archives of the Arizona Historical Society.

[25] Arizona Star, August 4, 1886, August 14, 1886, August 17, 1886, July 13, 1887, August 20, 1887; Arizona Mining Index, August 7, 1886.

[26] Arizona Star, June 7, 1888.

[27] Betancourt & Turner, op cit.

[28] Arizona Star, August 17, 1890.

[29] Arizona Star, February 5, 1891.

[30] Percy Jones, Jr. unpublished manuscript entitled A History of Civil Engineering in Arizona.

[31] Betancourt & Turner, op cit.

[32] Fontana, op cit. pp. 86.

[33] Jay J. Wagoner, Early Arizona: Prehistory to Civil War, University of Arizona Press, Tucson, 1975, pp.219.

[34] Ibid, pp. 222.

[35] Ibid, pp. 222.

[36] Personal interview with Judy England by Don Bufkin, July, 1987, at Tubac.

Major sources consulted in the preparation of this historical analysis, in addition to the published and unpublished sources as noted above, include:

The Changing Mile, by James R. Hastings and Raymond M. Turner, University of Arizona Press, Tucson, 1965.

Arroyos and Environmental Change in the American Southwest, by Ronald U. Cooke and Richard W. Reeves, Clarendon Press, Oxford, 1976.